



LISA KRAMER

SEASONAL VARIATION IN DEPRESSION & IN MARKETS

A collection of recent studies in finance strongly suggests human emotions play a profound role in financial markets. The view promoted by this body of work has become increasingly accepted by the investing public in the wake of extreme market volatility over the past few years. Certainly fundamental economic factors are the biggest determinant of security prices, but evidence is increasingly arising that basic human psychology also plays a pivotal role.

For example, with diminished daylight in the fall and winter, a substantial fraction of the population suffers annually from seasonal depression (commonly known as seasonal affective disorder, or SAD). Up to ten percent of people in North America suffer severely, and clinical evidence shows that most of the rest of us experience winter blues to a milder degree. Importantly, careful research has established that depressed people are more averse to financial risk. Consequently, as an investing public we are collectively less willing to bear financial risk in the fall and winter. Combine this human tendency with a bit of bad economic news, such as we have seen come out of Europe recently, and the result can be plummeting stock markets, much more so than if the same news had emerged in the spring or summer, when daylight is more abundant and our moods are more buoyant.

My co-authors Mark Kamstra, Maurice Levi, and I showed the impact this human characteristic has on stock markets around the world.¹ We found prices for risky securities tend to be lower in the fall when individuals start shunning risk, leading to a relatively higher expected reward for investors



“ A COLLECTION OF RECENT STUDIES IN FINANCE STRONGLY SUGGEST HUMAN EMOTIONS PLAY A PROFOUND ROLE IN FINANCIAL MARKETS. ”

who are willing to bear risk through the fall and winter seasons. Then, as daylight increases in the spring, prices tend to rebound, leading to lower expected returns for investors who hold risky securities during the spring and winter. (All of this is consistent with the old adage "Sell in May and go away.")

We found that in countries located at more extreme latitudes, such as Sweden and the UK, where daylight fluctuates more dramatically through the seasons

relative to North America, seasonal stock market fluctuations are relatively more dramatic. And in southern hemisphere countries such as Australia and New Zealand, where the seasons are six months out of phase, so are the seasonal effects in markets.

In follow-up studies that build on that finding, my co-authors and I have been examining the impact this human characteristic has on other aspects of

financial markets. We are finding that the expected return on safe financial assets, such as US government bonds, in a sense mirrors that of risky assets, with expected returns being lower in the fall and winter than the spring and summer.² Furthermore, we are finding that investor flows of capital into and out of mutual funds reflect this characteristic too: investors tend to move from risky to safe mutual fund categories in the fall and from safe to risky categories in the spring.³ To date, most of the evidence regarding the influence of seasonal depression on financial risk tolerance has been at the level of aggregate financial markets, with the implications for individual investor behavior being inferred rather than definitively shown. My recent work with co-author Mark Weber addresses that gap.⁴ In that study, we examined the financial risk preferences and other characteristics of hundreds of faculty and staff at a large North American University. We found strong, statistically significant evidence that individuals who suffer from seasonal depression become significantly more averse to financial risk in the winter. Moreover, they tend to be more risk averse than non-depressed individuals all year. This finding helps solidify our understanding of the influence human emotion has on risk preferences at the level of the individual, and aggregate price fluctuations at the level of the market. Additional work in progress will continue to build on this finding, contributing to the growing body of research that relates human psychology to the discipline of finance.

BIOGRAPHY

DR.

LISA KRAMER

is an Associate Professor of finance in the University of Toronto's Rotman School of Management. She recently spent a sabbatical as a Visiting Scholar in the Psychology Department at Stanford University. Her Ph.D. in finance is from the

Sauder School of Business at the University of British Columbia. During the years 2008 to 2011 she was the CSIRF Limited Term Professor.

Professor Kramer is an expert on behavioural finance, with interests in neuroeconomics, investments, capital market seasonality, human decisions, and emotions. Some of her best-known and most provocative research is based on identifying instances where investors' psychological tendencies lead to widespread movements in financial markets. She has delivered research seminars at universities and government agencies around the world, and she is a regular presenter at top international conferences including the meetings of the American Finance Association, the Western Finance Association, and the European Finance Association. Her work has been published in prestigious journals including the *American Economic Review* and the *Journal of Financial and Quantitative Analysis*. Her studies have been extensively covered by the popular media, in outlets including *The Wall Street Journal*, *US News and World Reports*, *The Washington Post*, *The Daily Telegraph*, *Business Week*, *SmartMoney Magazine*, *The National Post*, *The Globe and Mail*, CBC Television, and CBC Radio.

TESTIMONIAL

IT HAS BEEN AN IMMENSE HONOUR TO RECEIVE FUNDING FROM THE CSIRF.

The funding has permitted me to conduct research that would not have been feasible otherwise. Specifically, I have been able to conduct costly but extremely illuminating research based on studying the risk preferences of over a thousand individuals. Additionally, I was able to spend a year-long sabbatical at Stanford University collaborating with other researchers who study the influence of emotions on risk preferences. The fruits of the Foundation's support have already begun to emerge in the form of publications, and will continue to be produced based on the datasets I have been assembling. Collectively, the findings that are emerging from my Foundation-supported work are helping to shape the finance profession's understanding of the interaction between emotion and individuals' financial risk preferences.

¹ ["Winter Blues: A SAD Stock Market Cycle," 2003, *American Economic Review* 93(1), 324-343.] <http://www.jstor.org/pss/3132178>

² [Work-in-progress with Mark Kamstra and Maurice Levi, "Seasonal Variation in Treasury Returns."] <http://ssrn.com/abstract=1076644>

³ [Work-in-progress with Mark Kamstra, Maurice Levi, and Russ Wermers, "Seasonal Asset Allocation: Evidence from Mutual Fund Flows."] <http://ssrn.com/abstract=1907904>

⁴ [Seasonal Affective Disorder and Risk Aversion in Financial Decision Making, forthcoming, *Social Psychological and Personality Science*.] <http://spp.sagepub.com/content/early/2011/07/15/1948550611415694>